

In the Claims:

Please cancel Claim 14, without prejudice, and amend Claims 1, 15, 27-30, 32, 36 and 38 as indicated below. The status of all pending claims is as follows:

1. (Currently Amended) A liquid crystal display comprising:
a pair of substrates provided opposite to each other with one of said substrates having a pixel electrode and the other of said substrates having a common electrode;
a liquid crystal sealed between the pair of substrates; and
a pixel region including at least one low effective voltage area in which an effective voltage applied by the pixel and the common electrodes to the liquid crystal is lower than a voltage applied between the pixel and the common electrodes at another area, the at least one low effective voltage area occupying part of the region in a predetermined area ratio, the pixel region having a threshold voltage that is different between the at least one low effective voltage area and said another area, and
the pixel region also including a color filter layer having one color formed on at least one of the pair of substrates, wherein the effective voltage in the pixel region is different from that in another pixel region including a color filter layer having another color, wherein at least one of the color filters is blue, and further wherein the effective voltage in the low effective voltage areas associated with the blue color filter is lower than the effective

voltage in the low effective voltage areas associated with color filters of colors other than blue,

wherein the low effective voltage area has an effective voltage decreasing slit,

formed on at least one of the electrodes, and

wherein the liquid crystal is a nematic liquid crystal having negative dielectric constant anisotropy whose initial alignment is vertical to a surface of the substrates when no voltage is applied between the pixel and common electrodes.

2. (Previously Presented) A liquid crystal display according to claim 1,

wherein:

the plurality of color filter layers have center transmission wavelengths λ_k ($k = 1, 2, \dots, N; N > 2$); and

a cell thickness d_k of each pixel region having at least two kinds among the color filter layers satisfies a relationship expressed by:

$$|\Delta n(\lambda_i) \cdot d_i / \lambda_i - \Delta n(\lambda_j) \cdot d_j / \lambda_j| < 0.2$$

$$(i, j = 1, 2, \dots, N; i \neq j)$$

where $\Delta n(\lambda)$ represents birefringence of liquid crystal molecules against a wavelength λ .

3. (Previously Presented) A liquid crystal display according to claim 1,

wherein:

the plurality of color filter layers have center transmission wavelengths λ_k ($k = 1, 2, \dots, N; N > 2$); and

the product of the cell thickness d_k of each pixel region having the color filter layer whose center transmission wavelength λ_k is closest to 545 nm and birefringence $\Delta n(\lambda_k)$ of liquid crystal molecules against the center transmission wavelength λ_k satisfies a relationship expressed by:

$$250 \text{ nm} < \Delta n(\lambda_k) \cdot d_k < 450 \text{ nm}.$$

4. (Previously Presented) A liquid crystal display according to claim 1, wherein:

the plurality of color filter layers have center transmission wavelengths λ_k ($k = 1, 2, \dots, N; N > 2$);

a cell thickness d of the pixel region is substantially constant regardless of the center transmission wavelengths λ_k ;

effective retardation $\Delta n(\lambda_k, \theta_k)$ of the liquid crystal layer at the time of application of a data voltage V_k that imparts a tilt angle θ_k to liquid crystal molecules satisfies a relationship expressed by:

$$|\Delta n(\lambda_i, \theta_i) \cdot d / \lambda_i - \Delta n(\lambda_j, \theta_j) \cdot d / \lambda_j| < 0.2$$

$$(i, j = 1, 2, \dots, N; i \neq j)$$

between pixel regions each having two kinds among the color filter layers; and

chromaticity (x_0, y_0) of an incident light source which has been transmitted or reflected by the liquid crystal display panel and chromaticity (x_1, y_1) of display of white satisfy a relationship expressed by:

$$((x_0 - x_1)^2 + (y_0 - y_1)^2)^{1/2} < 0.1$$

when no polarizer is provided.

5. (Previously Presented) A liquid crystal display according to claim 1, wherein:

the plurality of color filter layers have center transmission wavelengths λ_k ($k = 1, 2, \dots, N; N > 2$);

a cell thickness d of the pixel region is substantially constant regardless of the center transmission wavelengths λ_k ; and

the product of the cell thickness d of the pixel region having the color filter layer with the shortest center transmission wavelength λ_k and birefringence $\Delta n(\lambda_k)$ of liquid crystal molecules against the center transmission wavelength λ_k satisfies a relationship expressed by:

$$250 \text{ nm} < \Delta n(\lambda_k) \cdot d < 450 \text{ nm}.$$

6. (Previously Presented) A liquid crystal display comprising:
a pair of substrates provided opposite to each other with one of said substrates having a pixel electrode and the other of said substrates having a common electrode;

a liquid crystal sealed between the pair of substrates; and

a pixel region including at least one low effective voltage area in which an effective voltage applied by the pixel and the common electrodes to the liquid crystal is lower than a voltage applied between the pixel and the common electrodes at another area, the at least one low effective voltage area occupying part of the region in a predetermined area ratio, the pixel region having a threshold voltage that is different between the at least one low effective voltage area and said another area;

wherein the area ratio of the low effective voltage area to total area of each pixel region is in the range from 0.6 to 0.8.

7. (Original) A liquid crystal display according to claim 1, wherein:
the threshold voltage of the low effective voltage area is higher than the threshold voltage of the other area by a predetermined voltage difference; and
the voltage difference is in the range from 0.1 V to 2.0 V.

8. (Previously Presented) A liquid crystal display according to claim 1,
wherein the area ratio varies depending on the center transmission wavelength λ of a color filter layer that the pixel region has.

9. (Previously Presented) A liquid crystal display according to claim 1, wherein the low effective voltage area has a dielectric layer formed with a predetermined thickness on at least one of the electrodes.

10. (Original) A liquid crystal display according to claim 9, wherein the dielectric layer is formed like stripes having a predetermined layer width and gap width.

11. (Canceled)

12. (Previously Presented) A liquid crystal display according to claim 1, wherein the effective voltage decreasing slit is formed like stripes having a predetermined electrode width and gap width.

13. (Previously Presented) A liquid crystal display according to claim 1, wherein the low effective voltage area is provided in the vicinity of an end of the pixel region.

14. (Cancelled)

15. (Currently Amended) A liquid crystal display according to ~~claim~~ claim 1, further comprising an alignment regulating structure for regulating the alignment

of the liquid crystal provided on at least one of the substrates, wherein the pixel region has a plurality of alignment regions in which the liquid crystal is aligned in different directions.

16-26. (Cancelled)

27. (Currently Amended) A liquid crystal display according to claim 6,

~~wherein~~further comprising:

color filter layers of blue and at least one other color formed on at least one of the substrates, wherein the plurality of color filter layers have center transmission wavelengths λ_k ($k = 1, 2, \dots, N; N > 2$); and

a cell thickness d_k of each pixel region having at least two kinds among the color filter layers satisfies a relationship expressed by:

$$|\Delta n(\lambda_i) \cdot d_i / \lambda_i - \Delta n(\lambda_j) \cdot d_j / \lambda_j| < 0.2$$

$$(i, j = 1, 2, \dots, N; i \neq j)$$

where $\Delta n(\lambda)$ represents birefringence of liquid crystal molecules against a wavelength λ .

28. (Currently Amended) A liquid crystal display according to claim 6,

~~wherein~~further comprising:

color filter layers of blue and at least one other color formed on at least one of the substrates, wherein the plurality of color filter layers have center transmission wavelengths λ_k ($k = 1, 2, \dots, N; N > 2$); and

the product of the cell thickness dk of each pixel region having the color filter layer whose center transmission wavelength λ_k is closest to 545 nm and birefringence $\Delta n(\lambda_k)$ of liquid crystal molecules against the center transmission wavelength λ_k satisfies a relationship expressed by:

$$250 \text{ nm} < \Delta n(\lambda_k) \cdot dk < 450 \text{ nm}.$$

29. (Currently Amended) A liquid crystal display according to claim 6,

wherein: further comprising:

color filter layers of blue and at least one other color formed on at least one of the substrates, wherein the plurality of color filter layers have center transmission wavelengths λ_k ($k = 1, 2, \dots, N; N > 2$);

a cell thickness d of the pixel region is substantially constant regardless of the center transmission wavelengths λ_k ;

effective retardation $\Delta n(\lambda_k, \theta_k)$ of the liquid crystal layer at the time of application of a data voltage V_k that imparts a tilt angle θ_k to liquid crystal molecules satisfies a relationship expressed by:

$$|\Delta n(\lambda_i, \theta_i) \cdot d / \lambda_i - \Delta n(\lambda_j, \theta_j) \cdot d / \lambda_j| < 0.2$$

$$(i, j = 1, 2, \dots, N; i \neq j)$$

between pixel regions each having two kinds among the color filter layers; and

chromaticity (x0, y0) of an incident light source which has been transmitted or reflected by the liquid crystal display panel and chromaticity (x1, y1) of display of white satisfy a relationship expressed by:

$$((x0 - x1)^2 + (y0 - y1)^2)^{1/2} < 0.1$$

when no polarizer is provided.

30. (Currently Amended) A liquid crystal display according to claim 6,

~~wherein:~~ further comprising:

color filter layers of blue and at least one other color formed on at least one of the substrates, wherein the plurality of color filter layers have center transmission wavelengths λ_k ($k = 1, 2, \dots, N; N > 2$);

a cell thickness d of the pixel region is substantially constant regardless of the center transmission wavelengths λ_k ; and

the product of the cell thickness d of the pixel region having the color filter layer with the shortest center transmission wavelength λ_k and birefringence $\Delta n(\lambda_k)$ of liquid crystal molecules against the center transmission wavelength λ_k satisfies a relationship expressed by:

$$250 \text{ nm} < \Delta n(\lambda_k) \cdot d < 450 \text{ nm}.$$

31. (Previously Presented) A liquid crystal display according to claim 6,

wherein:

the threshold voltage of the low effective voltage area is higher than the threshold voltage of the other area by a predetermined voltage difference; and

the voltage difference is in the range from 0.1 V to 2.0 V.

32. (Currently Amended) A liquid crystal display according to claim 6, wherein the area ratio varies depending on the center transmission wavelength λ of a color filter layer that the pixel region has.

33. (Previously Presented) A liquid crystal display according to claim 6, wherein the low effective voltage area has a dielectric layer formed with a predetermined thickness on at least one of the electrodes.

34. (Previously Presented) A liquid crystal display according to claim 33, wherein the dielectric layer is formed like stripes having a predetermined layer width and gap width.

35. (Previously Presented) A liquid crystal display according to claim 6, wherein the low effective voltage area has an effective voltage decreasing slit, formed on at least one of the electrodes.

36. (Currently Amended) A liquid crystal display according to ~~claim~~
claim 35, wherein the effective voltage decreasing slit is formed like stripes having a predetermined electrode width and gap width.

37. (Previously Presented) A liquid crystal display according to claim 6,
wherein the low effective voltage area is provided in the vicinity of an end of
the pixel region.

38. (Currently Amended) A liquid crystal display according to claim 6,
wherein the liquid crystal is a nematic liquid crystal having negative dielectric constant
anisotropy whose initial alignment is vertical to a surface of the substrates when no voltage is
applied between the pixel and common electrodes.

39. (Previously Presented) A liquid crystal display according to claim
38, further comprising an alignment regulating structure for regulating the alignment of the
liquid crystal provided on at least one of the substrates, wherein the pixel region has a
plurality of alignment regions in which the liquid crystal is aligned in different directions.